

METHOD AND APPARATUS FOR FORMING AND USING PLANARIZING PADS
FOR MECHANICAL AND CHEMICAL-MECHANICAL PLANARIZATION OF
MICROELECTRONIC SUBSTRATES

ABSTRACT

Methods and apparatuses for planarizing a microelectronic substrate. In one aspect of the invention, a first portion of an energy-sensitive, non-sacrificial planarizing pad material is exposed to a selected energy without exposing a second portion of the material to the selected energy source. The planarizing pad material is exposed to a solvent to remove material from one of the first or second portions of the planarizing pad material at a faster rate than removing material from the other of the first and second portions. The process forms a plurality of recesses directly in the surface of the planarizing pad which are configured to support a planarizing liquid proximate to the surface of the planarizing pad material during planarization of the microelectronic substrate. Alternatively, the process can form a mold having protrusions that are pressed into the planarizing pad to define the recesses in the pad.